

# Role of Information Tools in Teaching and Learning

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**Abstract.** Human capabilities are not wholly adequate to the demands of the modern teaching and learning enterprise. Here is where we aid the information tools as a facilitator. The impression of visual and audio tools are far greater is learners in registering the learning outcomes in their memory than the passive teaching of lecturing. Dramatic changes in technology have increased the variety and accessibility of information tools. Online Google Apps, Presentation software's, desktops and palm devices, course management tools, clickers and lecture capture tools, even flipping the classrooms are some of the latest information tools. Students are made to understand, communicate, associate and create by using the tools. This facilitates the transformation of knowledge & skills into products and solutions. Knowledge stored in the short term memory is transformed into long term memory by using the tools. Modern tools improve learning outcomes by the use of improved methodologies and better evaluation. Advantages of using the tools are better presentation by the teachers and proper understanding of the learners. Information tools facilitate interactive classes resulting in an enjoyable experience. Plenty of credible and resourceful websites makes the learners' accessibility easier. Slow learners are able to learn at their own pace, away from classrooms. Limited involvement of teachers in using information tools is a challenge. Resource limitation and knowledge and skills of the teachers are barriers. But these are attended by proper approaches to solve the issues. Research report by 'Institute of Multimedia Education' in Japan proves that use of Information tools has significant and possible impact on student achievement in terms of knowledge accumulation, practice skill and presentation skill.

## INTRODUCTION

According to Chris Clark, "Educational Technology is the considered implementation of appropriate tools, techniques or processes that facilitate the application of senses, memory and cognition to enhance teaching practices and learning outcomes".

Hap Aziz, the Director of School of Technology and Design, Rasmussen College, Minnesota, USA, explains, "Human Capabilities are not wholly adequate to the demands of modern teaching and learning enterprise and this is where technology as a facilitator has a role".

The use of a 2 minute video to bring the depths of the Universe, the bees pollinating the flowers, the process of respiration in human beings, the voice of Rabindranath Tagore while teaching his poems to the learner's eyes and ears are some of the examples of technology facilitating the application of our senses, memories and cognitive abilities.

How instantly the toon (Cartoon) given below Fig.1 exposes the extent and effect of deforestation in India? Certainly no amount of words would have created such an effect.

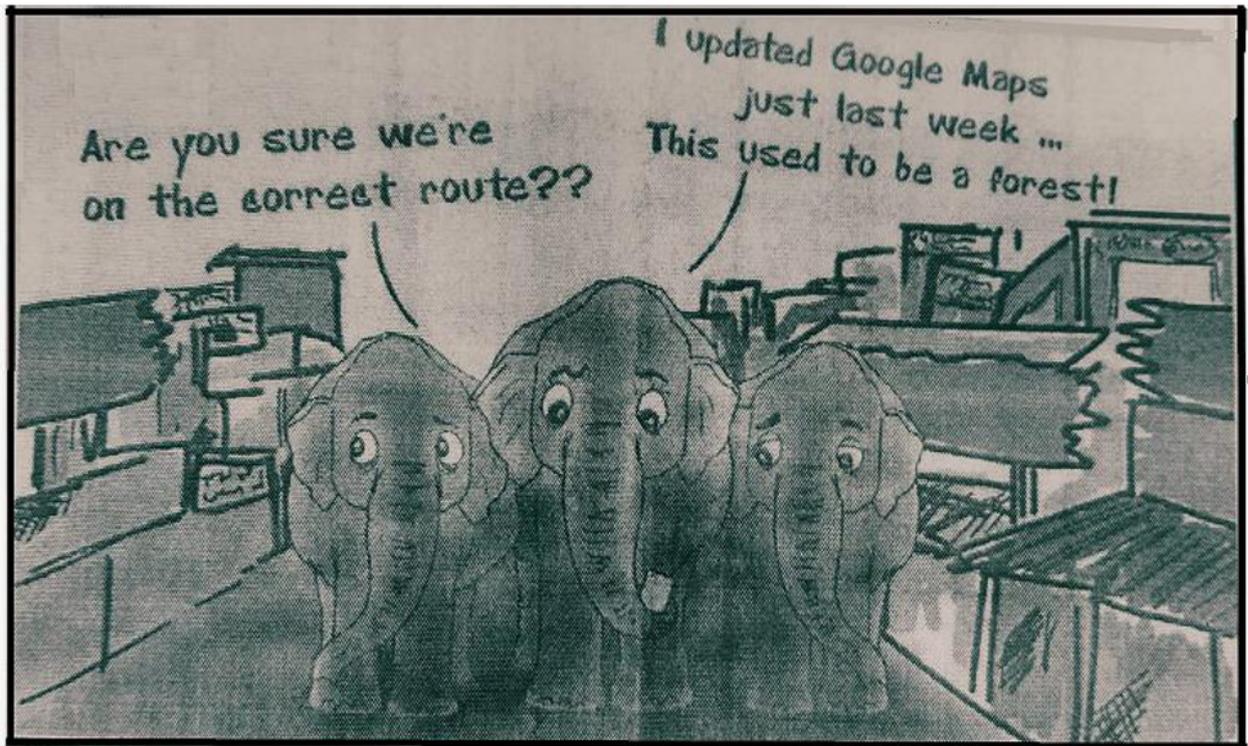


FIGURE 1. Cartoon depicting deforestation

### Tools for learning: Technology and Teaching strategies:

Dramatical changes in technology has increased the variety and accessibility of these tools. Computer devices from desktop to palm devices are more powerful as tools of education.

- Online collaboration tools such as Google Apps allow students and tutors to share documents online, edit them in real time and project them on screen.
- Presentation software like PowerPoint enable tutors to embed high resolution photos, diagrams, videos and to augment verbal lectures.
- Tablets linked to computers, projectors and the cloud facilitate both the teachers and the taught to communicate through text, drawings and diagrams.
- Course management tools such as CANVAS allow to organise the resources such as syllabi etc., and provide valuable grading tools and lead to discussions, document sharing, video and audio commentary. All courses are automatically given on the canvas site.
- Clickers and smart phones can be used to survey during class. They help instant pooling to access the students understanding and adjust space and content.
- Lecture capture tools such as Palmtops allows the instructor to record lectures directly from computer without elaborate or additional class room equipments. Giving them the lectures and then uploading them for rewatch facilitate the learners to review the lectures at their own pace.
- Flipping the classroom is another method. For higher levels of understanding the tutors may move out of the classroom. Of course this does not need technology. But use of videos, podcasts, online Quizzes etc., help the learners for out of class activity.
- Games may also be used as a tool with the help of tablets and smart phones.

## **Learning with technological tools**

Here students are made to understand, communicate, associate and create using the technology as their tool of learning. Of course, the most important purpose here is to transform the knowledge gained and skills learned into products and solutions appropriately.

## **Technology for better understanding**

Knowledge is the result of learning. They are stored in short term memory. This has to be transferred to the long term memory. Digital learning resources and computer softwares facilitate this process. Teacher as a facilitator, helps the learners to achieve this.

## **Improving learning outcomes**

All else might turn out simply exercises in our teaching, if the learning outcomes are not improved. To address the shortcomings for insufficient learning outcomes, we must use the modern tools to change our methodologies and accessing them again to evaluate the efficacy of our efforts to improve the learning outcomes.

## **Advantages of ICT tools in education**

There are seven main advantages of ICT tools, when used in teaching-learning process.

1. Using ICT images facilitate the teacher in teaching and improving the relative memory of students.
2. ICT helps us to easily explain complex concepts and ensure students' comprehension.
3. Through ICT Interactive classes may be created to make the lessons enjoyable and thereby improve students' attendance and concentration.
4. Through ICT teachers are able to collaborate their ideas and resources online.
5. Through ICT students can develop valuable research skills at a young age.
6. Access is made easy to an expanse of material due to the plenty of resourceful and credible websites available in the internet.
7. Slow pacers are enable to learn and live at their own pace because of resources available away the classroom.

## **Challenges and Barriers of ICT in Education**

Involvement of teachers are found to be limited because of

1. Resource limitation
2. Knowledge and skills of ICT of the concerned teachers
3. Their attitudes and beliefs

Here the experts are of the view that the provision of infrastructure is only secondary. Training and motivation of teachers is the primary one.

Before conclusion I would like to quote a report made by the 'National Institute of Multimedia Education' in Japan. This research report proves that an increase in student exposure to Educational ICT through curriculum integration has a significance and possible impact on student achievement especially in terms of

- "Knowledge-comprehension"
- "Practical skill" and
- "Presentation skill" in subject areas such as mathematics, science and social study

## CONCLUSION

Therefore let us realise that passive education cannot be of any help anymore because younger generation is becoming more and more technical savvy in the present digital era. Using ICT in Education makes students learn how to learn the what to learn.

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